The Sampler

April 29, 2016

The Sampler is a monthly e-newsletter produced by the Volunteer Lake Assessment Program.

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Web Highlights

This month's featured lake website is Lees Pond Association, Moultonborough, NH

Scientists Investigating Potential Link between Toxic Cyanobacteria and ALS

Water Color, Phytoplankton Growth in Gulf of Maine are Changing

Buffers Improve Water Quality

Fertilizer's Legacy: Taking a Toll on Land and Water

Monitoring Uncovers Mysterious Phosphorus Pollution

Are Oligotrophic Systems Disappearing in the United States?

Teen Designs Filter to Save a Stream

Citizen Scientists Collected Rare Ice Data

Upcoming Events

2016 Drinking Water Source Protection Conference

Fish Kill FAQs

What is a Fish Kill?
Fish kill is a term used for when a large number of the same species or multiple species of dead fish are found washed up along the shorelines of waterbodies. This often causes alarm for residents and recreational users of these waterbodies, but does not always mean the water is polluted, or unsafe for swimming and recreation.

What Causes Fish Kills and How Can I Prevent Them?
Most commonly, fish kills are a result of natural occurrences, particularly low dissolved oxygen (DO) levels. These events can kill fish either directly or indirectly by lowering their immune system defenses and increasing vulnerability to infectious diseases. Dissolved oxygen is produced in lakes and ponds by aquatic plants and particularly algae. Algae produce oxygen during photosynthesis, and when conditions are favorable, algae produce sufficient amount of oxygen for aquatic life. However, algae also use oxygen during periods of respiration, when sunlight is unavailable for photosynthesis such as cloudy days or night-time. During prolonged periods of respiration, this can create a DO deficit and potentially suffocate fish. Or more likely, low DO combined with other stressful factors, such as warm water temperatures and spawning, can leave fish vulnerable to bacterial or viral infections. Fish kills are commonly reported in the spring and early summer after spawning season. DO related fish kills occur more often during warm weather months, although occasional winter fish kills have been reported.

Maintaining good water quality can help prevent fish kills by reducing stressful conditions. Lake watersheds that are less

Tuesday, May 10, 2016
8:30 a.m. - 4:00 p.m.
Grappone Conference Center
Concord, NH 03301

2016 VLAP Annual Workshop
Saturday, May 21, 2016
8:30 a.m. - 12:15 p.m.
NHDES
29 Hazen Dr.
Concord, NH 03301

2016 Lakes Congress
June 2-3, 2016
Church Landing at Mills Falls
Meredith, NH 03253

Protecting Shorelands to Preserve Water Quality
Tuesday, July 26, 2016
7:00 - 8:30 p.m.

and

Underwater Layering of Lake Sunapee and Other NH Lakes
Thursday, July 28, 2016
7:00 - 8:30 p.m.
LSPA's Learning Center
63 Main St.
Sunapee, NH 03782

Grants

Wetland Reserve Enhancement Partnership (WREP)
USDA NRCS
Deadline: May 16, 2016

Upper Connecticut River Mitigation and Enhancement Fund
NH Charitable Foundation
Deadline: January 6, 2017

Limno Lingo

Ulothrix: A genus of filamentous green (Division Chlorophyta) algae common in NH lakes and rivers. Ulothrix are typically attached to a substrate such as rocks or vascular aquatic plants in standing or flowing water. Ulothrix may be more common in colder water temperatures of spring and winter.

developed typically generate less stormwater runoff and nutrient pollution. As development increases, nutrient pollution typically increases which causes increased algal growth and the amount of oxygen consumed during respiration. When the algal cells die, they add to the organic layer on the lake bottom and increase the rate of decomposition and oxygen demand by benthic organisms. A healthy balance of nutrients and algae can help protect against fish kills.

What is The Difference Between a Natural and Toxic-Caused Fish Kill?
While natural fish kills are more common, there are also non-natural fish kills caused by toxic substances such as pesticide application on a lawn or crops prior to or during a heavy rain that washes the pesticide into local waterbodies. There is no conclusive evidence to distinguish between the two types of fish kills, unless fish necropsies are performed. However, one of the main differences is a naturally caused fish kill will affect a particular species or age class, while a toxic fish kill will affect all species and ages of fish.

To report a fish kill contact the N.H. Fish and Game Department at 271-2501. For more information on what you can do to help protect water quality in N.H.'s lakes and ponds, visit the N.H. Department of Environmental Services' Watershed Management Bureau website or call 271-3503 for more information.

Don't Miss the 2016 VLAP Workshop!

The 2016 VLAP Workshop will be held on Saturday, May 21st at the NHDES offices on Hazen Drive in Concord. Guest speakers from the Vermont Department of Environmental Conservation, Watershed Management, Lakes and Ponds Division will be on site to talk to about the 2015 Vermont Clean Water Act and Clean Water Fund. The Vermont Clean Water Act was enacted to address stormwater runoff and pollutants affecting the state's valuable waterways, to restore water quality in the Lake Champlain Basin, and protect natural resources that are vital to Vermont's quality of life and economy. Support to implement these activities comes in part from the new Clean Water Initiative and Clean Water Fund. The Lakes and Ponds Division has also been at the forefront in assessing lakeshore disturbance and developing protocols to evaluate impacts on biological communities. You won't want to miss these talks!

In addition, NHDES staff will provide informative sessions on new developments in cyanobacteria monitoring and identification, as well as toxin analysis for the 2016 monitoring season, and provide a refresher on lake monitoring protocol for volunteers. For more information contact Sara Steiner, VLAP Coordinator, at sara.steiner@des.nh.gov or click here to register.

Get Ready for the 2016 Secchi Dip-in!

The 2016 Secchi Dip-in will occur in July during Lakes Appreciation Month. New for 2016, the Lake Observer Mobile App, developed under collaboration of the USEPA, North American Lakes Management Society (NALMS) and the Global Lake Ecological Observatory Network (GLEON), will allow you to enter the data while you're collecting it! Make sure to download the app to enter data during our July sampling events. The 2015 Secchi Dip-in Report and results are available on the Secchi Dip-in website.

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